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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: David S. Soane et al.	)		
Serial No.: Not Yet Assigned	)	Art Unit:	Not Assigned
Filed on: Evendate Herewith	)	Examiner:	Not Assigned
For: "Molecular Compounds Having Complementary Surfaces to Targets"	)	**PRELIMINARY AMENDMENT**	

Box PATENT APPLICATION
Commissioner for Patents
Washington, D.C. 20231

Sir:

This Preliminary Amendment is being filed concurrently with a Request to File a Continuation Application. Please amend the above-identified application as follows:

In the Specification

At page 1, the Title is amended as follows and as indicated in the marked up version included with this response as Attachment A:

MOLECULAR COMPOUNDS HAVING COMPLEMENTARY SURFACES TO TARGETS

At page 1, the paragraph starting at line 7 is amended as follows and as indicated in the marked up version included with this response as Attachment A:

This application is a continuation of copending U.S. patent application serial no. 09/172,921, filed October 14, 1998, which claims the benefit of U.S. provisional patent application serial no. 60/061,805, filed October 14, 1997, and U.S. provisional patent application serial no. 60/103,616, filed October 9, 1998, the disclosures of which are incorporated herein by reference in their entirety.

At page 21, line 1 is amended as follows and as indicated in the marked up version included with this response as Attachment A:

Table 3: Tails

In the Claims

Cancel claims 1-32 and 34-52, without prejudice.

Claim 33 is amended as follows and as indicated in the marked up version included with this response as Attachment A:

33. (1st Time Amended) A composition comprising an SPC of claim 53 in a pharmaceutically acceptable carrier.

Claims 53-82 are added as follows ~~and as indicated in the marked up version included with this response as Attachment A:~~

-- 53. A synthetic polymer complement ("SPC") comprising a crosslinked soluble three-dimensional polymeric network having a diameter less than about 1000 nm, and wherein the SPC comprises target binding sites on its surface, the target binding sites being complementary to at least a portion of the surface topology and force field of a target.

54. A synthetic polymer complement according to claim 53, wherein the SPC is capable of specific recognition of the target.

55. A synthetic polymer complement according to claim 53, wherein the target binding sites comprise three-dimensional cavities complementary to at least a portion of the surface topology and force field of the target.

56. A synthetic polymer complement according to claim 55, wherein the three-dimensional cavities retain their topological and force field complementarity to the target when they are not bound to the target.

57. A synthetic polymer complement according to claim 53, wherein the target is selected from the group consisting of organic compounds, toxins, pollutants, pathogens, synthetic drugs,

steroids and derivatives, proteins, glycoproteins, polysaccharides, lipids, lipopolysaccharides, polyanions including nucleic acid, porphyrins, substituted porphyrins, and active agents.

58. A synthetic polymer complement according to claim 53 wherein the polymeric network is comprised of monomers consisting of at least one crosslinking group and at least one head group, which is a functional group capable of undergoing a binding interaction with a site on the target.

59. A synthetic polymer complement according to claim 58 wherein the head group is selected from the group consisting of alcohols, carboxylic acids, amides, amines, phosphates, sulfonates, aromatic groups, sugars, disaccharides and polysaccharides.

60. A synthetic polymer complement according to claim 58 wherein the head group is a sugar, a protein, or a carbohydrate.

61. A synthetic polymer complement according to claim 58, wherein the crosslinking group is selected from the group consisting of acrylate, methacrylate, acrylamide, vinyl ether, epoxide, methacrylamide, vinylbenzene, α-methylvinylbenzene, vinylbenzene, divinylbenzene, maleic acid derivative, diene, substituted diene, thiol, alcohol, amine, carboxylic acid, carboxylic anhydride, carboxylic acid halide, aldehyde, ketone, isocyanate, succinimide, carboxylic acid hydrazide, glycidyl ether, silane, siloxane, chlorosilane, alkoxysilane, alkyne, azide, 2'-pyridyldithiol, phenylglyoxal, iodo, maleimide, aryl halides, imidoester, dibromopropionate, and iodacetyl.

62. A synthetic polymer complement according to claim 58 wherein the crosslinking group is an acrylate, a methacrylate, an acrylamide, or a methacrylamide.

63. A synthetic polymer complement according to claim 58 wherein the polymeric network is further comprised of monomers consisting of a crosslinking group without a head group.

64. A synthetic polymer complement according to claim 63 wherein the crosslinking group is an acrylate, a methacrylate, an acrylamide, or a methacrylamide.

65. A synthetic polymer complement according to claim 58 wherein the polymeric network is further comprised of monomers consisting of a crosslinking group, a head group, and a tail region.

66. A synthetic polymer complement according to claim 65 wherein the tail region comprises a moiety selected from the group consisting of a poly(ethylene glycol), poly(ethylene oxide), poly(vinyl alcohol), poly(vinylpyrrolidone), poly(ethyloxazoline), poly(ethylene oxide)-co-poly(propyleneoxide) block copolymer, polysaccharide, a poly(amino acid), and a hydrocarbon moiety.

67. A synthetic polymer complement according to claim 53 wherein the target binding sites comprise a surface having at least one functional group capable of undergoing a binding interaction with a site on a target.

68. A synthetic polymer complement according to claim 53 which comprises from 1 to about 1000 target binding sites.

69. A synthetic polymer complement ("SPC") comprising a crosslinked soluble three-dimensional polymeric network having a diameter less than about 1000 nm, and wherein the SPC is capable of binding a target, and wherein the SPC is formed by:

providing a set of monomers, at least some of the monomers comprising i) at least one head group, which is a functional group capable of undergoing a binding interaction with a site on the target and ii) at least one crosslinking group, which is a reactive group capable of covalently reacting to crosslink monomers of the monomer set;

contacting the set of monomers with the target to permit the monomers to self assemble on the target;

reacting the crosslinking groups of the monomers of the monomer set; and

removing the target;

to form the SPC comprising one or more three-dimensional binding sites on its surface, the binding sites being complementary in shape to at least a portion of the surface of the target.

70. A synthetic polymer complement according to claim 69 wherein the head group is selected from the group consisting of alcohols, carboxylic acids, amides, amines, phosphates, sulfonates, aromatic groups, sugars, disaccharides and polysaccharides.

71. A synthetic polymer complement according to claim 69 wherein the head group is a sugar, a protein, or a carbohydrate.

72. A synthetic polymer complement according to claim 69, wherein the crosslinking group is selected from the group consisting of acrylate, methacrylate, acrylamide, vinyl ether, epoxide, methacrylamide, vinylbenzene, α-methylvinylbenzene, vinylbenzene, divinylbenzene, maleic acid derivative, diene, substituted diene, thiol, alcohol, amine, carboxylic acid, carboxylic anhydride, carboxylic acid halide, aldehyde, ketone, isocyanate, succinimide, carboxylic acid hydrazide, glycidyl ether, silane, siloxane, chlorosilane, alkoxysilane, alkyne, azide, 2'-pyridyldithiol, phenylglyoxal, iodo, maleimide, aryl halides, imidoester, dibromopropionate, and iodacetyl.

73. A synthetic polymer complement according to claim 69 wherein the crosslinking group is an acrylate, a methacrylate, an acrylamide, or a methacrylamide.

74. A synthetic polymer complement according to claim 69 wherein the set of monomers further comprises monomers consisting of a crosslinking group without a head group.

75. A synthetic polymer complement according to claim 74 wherein the crosslinking group is an acrylate, a methacrylate, an acrylamide, or a methacrylamide.

76. A synthetic polymer complement according to claim 58 wherein the set of monomers further comprises monomers consisting of a crosslinking group, a head group, and a tail region.

77. A synthetic polymer complement according to claim 76 wherein the tail region comprises a moiety selected from the group consisting of a poly(ethylene glycol), poly(ethylene oxide), poly(vinyl alcohol), poly(vinylpyrrolidone), poly(ethyloxazoline), poly(ethylene oxide)-co-poly(propyleneoxide) block copolymer, polysaccharide, a poly(amino acid), and a hydrocarbon moiety.

78. A synthetic polymer complement according to claim 69 wherein the set of monomers further comprises a non-ionic surfactant.

79. A synthetic polymer complement according to claim 69 wherein at least some of the monomers are amphiphilic.

80. A synthetic polymer complement according to claim 69 wherein at least some of the monomers comprise a carbohydrate moiety.

81. A synthetic polymer complement according to claim 69 wherein at least some of the monomers comprise styrene, divinylbenzene or vinylbenzoic acid, and wherein the set of monomers further comprises a non-ionic surfactant.

82. A synthetic polymer complement according to claim 69 which comprises from 1 to about 1000 target binding sites. --

REMARKS

The title at page 1 is amended to be more descriptive of the invention being claimed. In addition, the specification is amended at page 1 to update the continuity data for the present application. The specification is amended at page 21 to correct an inadvertent typographical error in the numbering of the Tables.

New claims 53-82 find support in the original specification and claims as filed.

It is respectfully requested that this Amendment be entered.

Respectfully submitted,

Jacqueline S Larson

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Dated: Oct. 26, 2001

ATTACHMENT A

Marked Up Version Showing Amendments Made

(language added is underlined and language deleted in enclosed in brackets)

In the Specification

At page 1, the Title is amended as follows:

MOLECULAR COMPOUNDS HAVING COMPLEMENTARY SURFACES TO TARGETS [AND METHODS FOR THE SYNTHESIS AND USE THEREOF]

At page 1, the paragraph starting at line 7 is amended as follows and as indicated in the marked up version included with this response as Attachment A:

This application is a continuation of copending U.S. patent application serial no. 09/172,921, filed October 14, 1998, which claims the benefit of U.S. provisional patent application serial no. 60/061,805, filed October 14, 1997, and U.S. provisional patent application serial no. 60/103,616[[Attorney Docket No. 35909-30002.20]], filed October 9, 1998, the disclosures of which are incorporated herein by reference in their entirety.

At page 21, line 1 is amended as follows and as indicated in the marked up version included with this response as Attachment A:

Table [2] 3: Tails

In the Claims

Claim 33 is amended as follows:

33. (1st Time Amended) A composition comprising an SPC of claim [19] 53 in a pharmaceutically acceptable carrier[, wherein the target is an active agent].